

Remarks

This is in response to the Office Action of March 1, 2007. In that Office Action, Claims 5, 6, 10-13 and 17 were rejected under 35 USC 103(a) as being unpatentable over U.S. Patent No. 3,660,170 to Rampel in view of U.S. Patent No. 4,192,908 to Himy et al.

Claims 5-13, 17 and 18 were also rejected on the ground of non-statutory obviousness-type patenting as being unpatentable over Claims 1-4 of U.S. Patent No. 6,602,394 in view of U.S. Patent No. 5,162,079 to Brown.

Claim 9 was rejected under 35 USC 112 as lacking antecedent basis for the term "complex former." Claims 5 and 10 were objected to for informal reasons.

By this Amendment, Claims 5 and 8-10 have been amended to more clearly recite the novel features of the present invention. Specifically, Claim 5 has been amended to recite a method for plating zinc containing coatings under alkaline conditions from an electroplating bath. The method includes, among other things, introducing into the cathode compartment an alkaline electrolyte with metal ions for forming an electroplating bath. Applicants submit that these amendments clearly distinguish the claimed method over the cited art, for at least the following reasons.

The claimed method pertains to the field of electroplating and thus, to galvanic technology. The claims pertain to a method for efficiently depositing zinc alloy coatings from an electroplating bath onto a work piece (such as for example, a screw). Electroplating is a very specific technology with unique demands and problems. The problems occurring with alkaline zinc alloy plating baths are generally set forth in

paragraph 6 and 7 of the published application. One of the main problems is the color change of the bath. After a few days or weeks of use, discoloration of the bath becomes more intense and the bath separates into two phases, the upper phase being dark brown. This dark brown phase causes considerable disruption to the coating of the work piece, often resulting in a nonuniform layer thickness or blistering. In addition, after a few weeks of operation of conventional baths, cyanide is typically detected in the bath. Cyanide pollution and disposal creates a serious problem that increases operational costs and thus must be avoided.

The method of the present invention provides a solution to the above-described problems. The anode is separated from the cathode by an ion-exchange membrane in the alkaline zinc alloy electroplating bath, thereby avoiding the above-described potential problems. The membrane allows unimpeded flux of current through the bath but prevents the catholyte, in particular the amines contained therein, from coming into contact with the anode.

In contrast, the art cited, namely Rampel and Himy, are directed to the design of batteries and are thus unrelated to the technological field of the above invention. Rampel and Himy do not disclose or suggest electroplating zinc alloys from an alkaline electroplating bath. Rampel, for example, refers to battery cells and only mentions electroplating in passing (see Abstract). However, the overall description of Rampel is not related to electroplating nor does Rampel appreciate the problems that the present invention addresses. The problems of phase separation and cyanide formation are not an issue for Rampel. In the field of rechargeable batteries as disclosed in Rampel, one

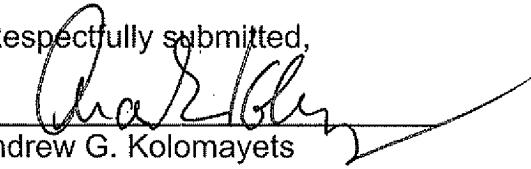
of the problems that may occur is the formation of dendrites. The problem of dendrites does not occur in baths of the type claimed in the present application.

Similarly, Himy pertains to an alkaline nickel-zinc cell, i.e. a battery. Himy likewise is not related to the field of the present invention, namely the alkaline zinc alloy electroplating baths and methods using them and providing them. Thus, it is clear that the art relied upon by the Examiner are not related to the present invention. Accordingly, one of ordinary skill in the art would not have considered these prior art documents when considering methods of electroplating. Indeed, because the problems are so distinct and unrelated to the subject matter of the present invention, one of skill in the art faced with the problem of cyanide formation and phase separation in electroplating baths would have had no reason to even consider Rampel or Himy. In short, missing from the prior art is any apparent reason why the elements of the cited references would have been combined. At the very least, the Office Action does not make any such reason or analysis explicit. KSR v. Teleflex Inc., 127 S.Ct. 1727, 1741 (2007).

Applicants have also amended the claims to address the rejections under 35 USC §112 and the informalities in Claim 5. As for the rejection under obviousness-type double patenting, Applicants respectfully submit that the rejection is premature in that the final scope of the claims has not yet been established.

For the reasons set forth above, Applicants respectfully submit that the claims, as amended, are now in condition for allowance. Reconsideration and allowance of such claims are respectfully requested.

Respectfully submitted,


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